

CENTER ON RACE, POVERTY & THE ENVIRONMENT

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May 7, 2007

Dr. Robert J. Sawyer
Chairman
Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: Recommendations for Early Action Measures

Dear Chairman Sawyer:

The Center on Race, Poverty & the Environment (CRPE) provides these comments on the California Air Resources Board's Proposed Early Action Measures to implement AB 32, and looks forward to working with CARB as it moves forward with implementing AB 32.

CRPE believes that requiring three early action measures and committing to other measures in Table 2 is a good start, but that more is needed. CARB should include more measures as early action measures to quickly address the pressing global warming problem and should evaluate the full environmental justice implications of the measures that it has proposed. Moreover, CRPE notes that Tables 1 and 2 currently only contain one measure to address methane emissions from livestock facilities, which account for 54 percent of the state's methane inventory and four percent of the total greenhouse gases in the state;¹ methane has a global warming potential over 21 times that of carbon

¹ The California Greenhouse Gas Emissions inventory places dairy enteric fermentation methane emissions at 4.69 million metric tons of carbon dioxide equivalent (MMTCO₂E), so that livestock methane emissions amount to over three percent of greenhouse gas emissions and over 47% of methane emissions. California Energy Commission, California Greenhouse Gas Emissions, updated January 2007, <http://www.arb.ca.gov/cc/ccei/emsinv/emsinv.htm>. However,

dioxide. Therefore, CRPE urges CARB to include more measures to reduce methane from these sources.

CRPE is glad to see CARB committing to a measure to address methane emissions from livestock operations. However, as CRPE stated in its remarks at the first Early Action Measures workshop in January, CARB needs to be cognizant that digesters need to be supplemented with other pollution controls to ensure that emissions of other pollutants do not rise. In addition, CARB can and should do more to address greenhouse gas emissions from livestock facilities. Because some of the other measures that CRPE recommended in its January comments appear to have been overlooked and do not appear on the list of measures outlined in CARB's proposed measures, CRPE also reiterates the measures here and urges CARB to consider these promising tools as part of its Early Action Measures process, at least in Table 2.

Digester technology has great potential because it can control emissions of various pollutants, including methane and smog-forming volatile organic compounds while controlling odors from livestock operations and providing other environmental benefits, especially since they are already at use at many facilities both in California and around the country.² However, digesters can also lead to increases in emissions of reactive nitrogen compounds. In addition, inappropriate handling of the liquid effluent from the digester may lead to rapid releases of reactive nitrogen compounds into the air when the effluent is applied to land. Notably one of the reactive nitrogen compounds that could be generated is nitrous oxide (N₂O), a gas with roughly 300 times the global warming potential of carbon dioxide and 15 times the climate forcing ability of methane. Nitrogen

recent research by Dr. Mithloehner reveals very high levels of methane emissions from enteric fermentation, placing emissions at 340 lb/cow/year for lactating cows and 335 lb/cow/year for dry cows. Frank Mithloehner, Volatile Fatty Acids, Amine, Phenol, and Alcohol Emissions from Dairy Cows and Fresh Waste, May 31, 2006, at 17. When these numbers are multiplied by the number of cows in each category in California and by the global warming potential of methane (21), enteric fermentation methane emissions total 9.03 MMTCO₂E, almost double the number in the inventory. California Air Resources Board, Staff Report: Initial Statement of Reasons, Public Hearing to Consider the Large Confined Animal Facility Definition, May 6, 2005, Table 1; University of California Division of Agriculture and Natural Resources Committee of Experts on Dairy Manure Management, Managing Dairy Manure in the Central Valley in California, revised June 2005, at 1. This new methane emissions number was used to calculate the percentages listed in the text, with 9.03 MMTCO₂E replacing the current dairy enteric fermentation numbers in the inventory and the difference between the two added to both the methane and overall greenhouse gas totals for California.

² Dairy Permitting Advisory Group, Recommendations to the San Joaquin Valley Air Pollution Control Officer Regarding Best Available Control Technology for Dairies in the San Joaquin Valley, Final Report – January 31, 2006, at 108-110 (“DPAG Report”). Available at: <http://valleyair.org/busind/pto/dpag/Final%20DPAG%20BACT%20Rep%201-31-06.pdf>.

emissions can negatively impact both air and water quality;³ oxides of nitrogen are a smog-forming compound. CARB must take these issues into consideration and require controls for these and other digester emissions in moving forward with the digester protocol to avoid these impacts.

In addition to the digester protocol, CARB should consider a statewide composting rule to capture emissions from manure composting. There are already two Air District Rules (San Joaquin Rule 4565 and South Coast Rule 1133.2) which aim to capture (non-methane) emissions from composting, including manure composting. Methane emissions from the manure being composted can be captured in the same manner using in-vessel composting or aerated static piles. These rules should be applied to animal facilities statewide to capture methane emissions.

Finally, CRPE urges CARB to require enclosure of housing and milking barns at dairies vented to an incinerator or biofilter/bioscrubber as a means of controlling methane emissions.⁴ There are about 2.8 million dairy cows in California, each producing between 334 to 340 pounds per year of methane, adding up to 9.03 MMTCO₂E of methane, or over 28 percent of the state's methane inventory, from enteric fermentation alone.⁵ Cow housing is the location where most of the enteric fermentation will take place, thus making cow housing a very large source of methane, a gas with a global warming potential of over 21 times that of carbon dioxide. Enclosure and combustion/biofiltration systems would also provide the additional benefit of controlling VOC, ammonia, and hydrogen sulfide emissions from animal facilities.⁶ Biofilter systems are already in use for swine facilities, have been reported for dairies, and have been proposed by businesses in

³ See US Department of Agriculture (USDA), Natural Resources Conservation Service, 2003. Costs Associated with Development and Implementation of Comprehensive Nutrient Management Plans (CNMP). Part I – Nutrient Management, Land Treatment, Manure and Wastewater Handling and Storage, and Recordkeeping. <http://www.nrcs.usda.gov/technical/land/pubs/cnmp1.html>, addressing challenges facing the management of nitrogen and other nutrients at animal facilities.

⁴ See Roland W. Melse and Arjan W. Van Der Werf, Biofiltration for Mitigation of Methane Emission from Animal Husbandry, *Environmental Science & Technology*, 2005, vol. 39, no.14, pp. 5460-5468, abstract available at <http://pubs.acs.org/cgi-bin/abstract.cgi/esthag/2005/39/i14/abs/es048048q.html>.

⁵ Frank Mithloehner, Volatile Fatty Acids, Amine, Phenol, and Alcohol Emissions from Dairy Cows and Fresh Waste, May 31, 2006, at 17; California Air Resources Board, Staff Report: Initial Statement of Reasons, Public Hearing to Consider the Large Confined Animal Facility Definition, May 6, 2005, Table 1; University of California, Division of Agriculture and Natural Resources, Committee of Experts on Dairy Manure Management, Managing Dairy Manure in the Central Valley in California, revised June 2005, at 1; California Energy Commission, California Greenhouse Gas Emissions, updated January 2007, <http://www.arb.ca.gov/cc/ccei/emsinv/emsinv.htm>.

⁶ DPAG Report, at 19-23.

California.⁷ Enclosing the barns essentially means putting up walls at dairies, something already done in colder parts of the country, and chicken facilities are also enclosed in California. Since the biofilters produce carbon dioxide,⁸ further pollution control equipment may be required to cut carbon dioxide. If the enclosure was vented to an incinerator, then additional pollution control equipment would be required to address the emissions from the combustion.

Thank you for your time and attention. CRPE looks forward to working with CARB through the AB 32 implementation process.

Sincerely,

A handwritten signature in black ink, appearing to read 'Avinash Kar', with a long horizontal flourish extending to the right.

Avinash Kar
Center on Race, Poverty & the Environment

A handwritten signature in black ink, appearing to read 'Tom Frantz', with a stylized, cursive script.

Tom Frantz
Member, Global Warming Environmental Justice Advisory Committee

⁷ See DPAG Report, at 20-23.

⁸ US EPA, Using Bioreactors to Control Air Pollution, September 2003, at 1, <http://www.epa.gov/ttn/catc/dir1/fbiorect.pdf>.